

CLAIMS

1. A precious metal sputtering target material having a crystallographic microstructure containing columnar crystals, in which crystals are grown in a direction normal to a sputtering surface.

2. A sputtering target material according to claim 1, wherein the crystallographic microstructure containing columnar crystals is electrodeposited from a solution containing a precious metal salt.

3. A sputtering target material according to claim 2, wherein the solution containing a precious metal salt is a molten salt admixed with a precious metal.

4. A sputtering target material according to any one of claims 1 through 3, wherein the precious metal is platinum, ruthenium, or iridium.

5. A sputtering target material according to any one of claims 1 through 3, wherein the precious metal is platinum, and the ratio of the integral intensity of a (200) face to that of another arbitrary crystal face as determined by X-ray diffractometry is greater than the corresponding ratio as measured for a powder platinum sample.

6. A sputtering target material according to any one of claims 1 through 3, wherein the precious metal is ruthenium, and the ratio of the integral intensity of a (112) face to that of another arbitrary crystal face as determined by X-ray diffractometry is greater than the corresponding ratio as measured for a powder ruthenium sample.

7. A sputtering target material according to any one of claims 1 through 3, wherein the precious metal is ruthenium, and the ratio of the integral intensity of a (001) face to that of another arbitrary crystal face as determined by X-ray diffractometry is greater than the corresponding ratio as measured for a powder ruthenium sample.

8. A sputtering target material according to any one of claims 1 through 3, wherein the precious metal is iridium, and the ratio of the integral intensity of a (220) face to that of another arbitrary crystal face as determined by X-ray diffractometry is greater than the corresponding ratio as measured for a powder iridium sample.